In the Specification

Kindly replace the first paragraph on page 1 with the following:

Technical Field

~~The present~~ This disclosure ~~invention~~ relates to high tensile strength hot-rolled steel sheets having superior strain aging hardenability. More particularly, ~~the invention~~ it relates to a high tensile strength hot-rolled steel sheet having a TS (tensile strength) of 440 MPa or more, and relates to a method for producing the same. The high tensile strength hot-rolled steel sheet is mainly used for automobiles as a thin hot-rolled steel sheet having high workability. Furthermore, the high tensile strength hot-rolled steel sheet is used as a replacement for a thin cold-rolled steel sheet having a thickness of approximately 4.0 mm or less and which was employed because it was difficult to produce a steel sheet with such a small thickness by hot rolling. The applications of the steel sheet ~~in accordance with the present invention~~ extend over a wide range from use for relatively light working, such as slight bending and forming of pipes by roll forming, to relatively heavy working, such as drawing by a press.

Kindly replace the paragraph bridging pages 1 and 2 with the following:

The ~~present invention~~ disclosure concerns not only hot-rolled steel sheets but also electroplated steel sheets and hot-dip plated steel sheets using the hot-rolled steel sheets as mother plates.

Kindly replace the first paragraph on page 2 with the following:

~~In the present invention "having~~ "Having superior strain aging hardenability" means to have the following characteristics:

1) when a steel sheet is subjected to predeformation with a tensile strain of 5% and then aging treatment by retaining the steel sheet at 170°C for 20 minutes, an increase in deformation stress

before and after the aging treatment (hereinafter referred to as BH; BH = Yield stress after aging treatment - Predeformation stress before aging treatment) is 80 MPa or more; and

2) an increase in tensile strength before and after strain aging treatment (the predeformation + the aging treatment) (herein after referred to as ΔTS; ΔTS = Tensile strength after aging treatment - Tensile strength before predeformation) is 40 MPa or more.

Kindly replace the paragraph bridging pages 6 and 7 with the following:

Summary

We produced various steel sheets by changing compositions and production methods and have conducted many material evaluation tests. As a result, it has been found that an improvement in formability and an increase in strength after formation are easily made compatible with each other by using N, which has not been used positively in the field where high workability is required, as a strengthening element, and by effectively using a large strain aging hardening phenomenon exhibited by the action of N as the strengthening element. In order to effectively use the strain aging hardening phenomenon by N, the strain aging hardening phenomenon by N must be effectively combined with paint baking conditions for automobiles and heat-treating conditions after formation. ~~The present inventors have~~ <u>We</u> found that it is effective to adjust the microstructure and the amount of dissolved N in a steel sheet within predetermined ranges by optimizing the hot rolling conditions. It has also been found that in order to stably cause the strain aging hardening phenomenon by N, it is particularly important to control the Al content according to the N content in terms of compositions.

Kindly replace the first paragraph on page 18 with the following:

However, with respect to a steel sheet ~~of the present invention~~ containing 0.1% or less in total of at least one of more than 0.02% to 0.1% of Nb and more than 0.02% to 0.1% of V, the Mn content is preferably set at 1.0% to 3.0%. If the Mn content is less than 1.0%, the Ar_3 transformation temperature increases, and carbonitrides are remarkably formed in the high-temperature ferrite phase, and since the carbonitrides coarsen, it becomes difficult to ensure desired strength. Therefore, the Mn content must be 1.0% or more..

Kindly replace the second paragraph on page 20 with the following:

N: 0.0050% to 0.0250%

N is the most important constituent element ~~in the present invention~~. That is, by the addition of an appropriate amount of N to control the production conditions, it is possible to secure a necessary and sufficient amount of N in the dissolved state in the mother plate (as hot rolled). Thereby, the effect of an increase in strength (YS, TS) due to solid-solution strengthening and strain aging hardening is satisfactorily exhibited, and it is possible to stably satisfy the mechanical property conditions of the steel sheet ~~of the present invention~~, i.e., TS of 440 MPa or more, BH of 80 MPa or more, and ΔTS of 40 MPa or more. N also decreases the Ar_3 transformation temperature. Since it is possible to prevent a thin steel sheet, whose temperature is easily decreased during hot rolling, from being rolled at a temperature lower than the Ar_3 transformation temperature, N is effective in stabilizing operation.

Kindly replace the paragraph bridging pages 20 and 21 with the following:

If the N content is less than 0.0050%, it is not possible to obtain the strength-increasing effect. On the other hand, if the N content exceeds 0.0250%, the rate of occurrence of internal defects of the steel sheet increases, and also slab cracking during continuous casting, etc., often

occurs. Therefore, the N content is set at 0.0050% to 0.0250%. In view of material stability and improvements in yield in consideration of the whole manufacturing process, the N content is preferably set at 0.0070% to 0.0170%. Additionally, if the N content is in ~~the~~ that range ~~of the present invention~~, there are no adverse effects on weldability.

Kindly replace the second paragraph on page 28 with the following:

~~In the present invention, although~~ Although dissolved N is secured in the mother plate, according to ~~the~~ our experiment and analysis results ~~by the present inventors~~, even if the amount of dissolved N is kept at a certain level, if the average grain size of the ferrite phase exceeds 10 μm, variations in strain aging hardenability are increased. Although the detailed mechanism for the above is unknown, the segregation and precipitation of alloying elements in the grain boundaries, and working and heat treatment applied thereto are considered to be related to the variations. Independent of the reasons, in order to stabilize strain aging hardenability, the average grain size of the ferrite phase must be set at 10 μm or less. Additionally, in order to further improve and stabilize BH and ΔTS, the average grain size is preferably set at 8 μm or less.

Kindly replace the first paragraph on page 35 with the following:

When the thickness of the produced steel sheet exceeds 4.0 mm, the advantages ~~of the present invention~~ are lost because even the conventional steel sheet having large deformation resistance at elevated temperatures can be easily hot-rolled and because steel sheets having a thickness of more than 4.0 mm are not substantially used for automobiles. Therefore, the steel sheet preferably has a thickness of 4.0 mm or less.

Kindly replace the second paragraph on page 35 with the following:

A plated steel sheet obtained by electroplating or hot-dip plating the steel sheet ~~of the present invention~~ also has TS, BH, and ΔTS which are substantially the same as those before plating. As the type of plating, any one of electro-galvanizing, hot-dip galvanizing, hot-dip galvannealing, electrotinning, electrolytic chromium plating, and electrolytic nickel plating may be preferably used.